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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,204	12/21/2001	Daniel T. Colbert	11321-P011CID3	1758

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EXAMINER

LISH. PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

LD

Office Action Summary

Application No.

10/038,204

Applicant(s)

COLBERT ET AL.

Examiner

Peter J Lish

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 112-141 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 125, 134, 135 and 138-141 is/are allowed.
- 6) ☒ Claim(s) 112-119, 121-124, 126-133, 136 and 137 is/are rejected.
- 7) ☒ Claim(s) 120 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/19/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 112, 114, 116, 118, 122-124, 127, 129, 131, and 136-137 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kiang et al. ("Carbon Nanotubes With Single-Layer Walls").

The rejection of the previous office action is maintained in its entirety and incorporated herein by reference.

Claims 113, 115, 117, 119, 126, 128, 130, and 132 are rejected under 35 U.S.C. 102(a) as anticipated by Kiang et al. as applied above and with Dresselhaus et al. (Carbon Nanotubes: Synthesis, Structure, Properties, and Applications) to show a state of fact.

The rejection of the previous office action is maintained in its entirety and incorporated herein by reference.

Claims 113, 115, 117, 119, 126, 128, 130, 132, and 136-137 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kiang et al. as applied above.

The rejection of the previous office action is maintained in its entirety and incorporated herein by reference.

Claim Rejections - 35 USC § 103

Claims 121 and 133 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang et al. as applied to claims 112 and 124 above, and further in view of Green et al. (US 6,090,363).

The rejection of the previous office action is maintained in its entirety and incorporated herein by reference.

Allowable Subject Matter

Claim 120 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 125, 134-135, and 138-141 are allowed.

Response to Arguments

Applicant's arguments filed 12/02/04 have been fully considered but they are not persuasive. The applicants argue that the bundles of single-walled nanotubes disclosed by Kiang are one-dimensional and not "substantially two dimensional" as are the presently claimed arrays. However, it is held by the examiner that a bundle of nanotubes consists of a group of single-walled nanotubes held together by Van der Waals forces. Therefore, upon looking at a cross-section of the bundle there are two dimensions, see for example applicant's Figure 12 which

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shows an arrangement that may represent a bundle of single-walled nanotubes. It is not seen how the substantially two-dimensional array of the presently claimed invention differs from this arrangement.

The applicants also argue that the term “array” requires an orderly arrangement and that bundles of single-walled nanotubes deposit randomly upon growth. However, the examiner relies only upon a single bundle of nanotubes, which itself consists of an orderly arrangement of single-walled nanotubes, held together by Van der Waals forces.

Additionally, to show the substantially two-dimensional array, the applicants point toward Figure 8 of the instant application and the statement in the specification, “substantially two-dimensional array made up of single-walled nanotubes aggregating (e.g., by van der Waals forces) in substantially parallel orientation to form a monolayer extending in directions substantially perpendicular to the orientation of the individual nanotubes.” However, one cannot tell what is shown in Figure 8 because it is only a side image rendered from one viewpoint (i.e. is there a depth of nanotubes behind those shown?). It is noted that Fig. 8 appears to show a *linear* array of nanotubes. Additionally, there is no aggregation of nanotubes, as quoted from the specification, shown in Fig. 8.

The applicants argue, with respect to the rejections under 102/103, that inherency is not shown. However, the applicant is reminded that the usage of a 102/103 rejection does not require one to show inherency. Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to the applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See *In re Best*, 195 USPQ 430.

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Where, as here, the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, the burden of proof is shifted to the applicant, as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Applicant's arguments, with respect to the rejection of claim 120 as obvious over Kiang in view of Hiura, have been fully considered and are persuasive. The rejection of the previous office action has been withdrawn.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

PL



STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700